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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A61K 35/00		A1	(11) International Publication Number: WO 00/69448 (43) International Publication Date: 23 November 2000 (23.11.00)
(21) International Application Number: PCT/US00/12875 (22) International Filing Date: 11 May 2000 (11.05.00) (30) Priority Data: 60/134,344 14 May 1999 (14.05.99) US		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
<p>(71) Applicant (for all designated States except US): HENRY FORD HEALTH SYSTEM [US/US]; 1 Ford Place, 4B, Detroit, MI 48202-3450 (US).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): LI, Yi [US/US]; 7046 Pittsford Drive, Canton, MI 48187 (US). CHOPP, Michael [US/US]; 28415 Brooks Lane, Southfield, MI 48034 (US).</p> <p>(74) Agents: KOHN, Kenneth, I. et al.; Kohn & Associates, Suite 410, 30500 Northwestern Highway, Farmington Hills, MI 48334 (US).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>			
<p>(54) Title: BONE MARROW TRANSPLANTATION FOR TREATMENT OF STROKE</p> <p>(57) Abstract</p> <p>There is provided a treatment for patients suffering from neurodegenerative disease or neural injury including the steps of transplanting cultured bone marrow cells into the spinal cord or brain or injecting intravascularly bone marrow cells of a patient in need. Also provided is a method of activating the differentiation of neural cells in an injured brain including the steps of transplanting bone marrow cells adjacent to the injured brain cells and activating the endogenous central nervous system stem cells to differentiate into neurons. A method of treating injured brain or spinal cord cells is also provided including the steps of transplanting bone marrow cells near the injured brain cells and generating new neurons at the location of transplantation. A method of treating injured brain or spinal cord cells with a composite of MSCs and neurospheres.</p>			

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/12875

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 35/00

US CL : 424/93.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/93.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,750,376 (WEISS et al.) 12 May 1998, entire document.	1-4
A	US 5,690,927 (MAJOR et al.) 25 November 1997, entire document.	1-4
A	JACKOWSKI et al. Neural injury repair: hope for the future as barriers to effective CNS regeneration become clearer. British J. Neurosurgery. 1995. Vol. 9, pages 303-317, entire document.	1-4

 Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search

27 JULY 2000

Date of mailing of the international search report

19 SEP 2000

Name and mailing address of the ISA/US
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/12875

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

WEST

Dialog (file: medicine)

search terms: transplant?, bone(w)marrow, cell?, brain, spin?, neuron, neurosphere, mesenchymal(w)stem(w)cell,
neural, neurodegenerative, stroke, injury

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The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty

Douglas M. Hefner
Signature of person mailing PCT envelope

Box No. I TITLE OF INVENTION
BONE MARROW TRANSPLANTATION FOR TREATMENT OF STROKE

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

HENRY FORD HEALTH SYSTEM
One Ford Place, Suite 4B
Detroit, Michigan 48202-3450
United States of America

This person is also inventor.

Telephone No.

Faxsimile No.

Teleprinter No.

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant all designated all designated States except the United States of America only the United States of America only the States indicated in the Supplemental Box for the purposes of:

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

Li, Yi
7046 Pittsford Drive
Canton, Michigan 48187
United States of America

This person is:

applicant only

applicant and inventor

inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant all designated all designated States except the United States of America only the United States of America only the States indicated in the Supplemental Box for the purposes of:

Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

agent

common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

Telephone No.

248-539-5050

KOHN, Kenneth I.
RINALDO, Amy E.
KOHN & ASSOCIATES
30500 Northwestern Highway, Suite 410
Farmington Hills, Michigan 48334
United States of America

Facsimile No.

248-539-5055

Teleprinter No.

Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet is not to be included in the request.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

CHOPP, Michael
28415 Brooks Lane
Southfield, Michigan 48034
United States of America

This person is:

- applicant only
- applicant and inventor
- inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
USState (that is, country) of residence:
US

This person is applicant all designated all designated States except the United States of America only the States indicated in the Supplemental Box for the purposes of:

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- applicant only
- applicant and inventor
- inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant all designated all designated States except the United States of America only the States indicated in the Supplemental Box for the purposes of:

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- applicant only
- applicant and inventor
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State (that is, country) of nationality:

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<input checked="" type="checkbox"/> BA Bosnia and Herzegovina	<input checked="" type="checkbox"/> MD Republic of Moldova	
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<input checked="" type="checkbox"/> GB United Kingdom	<input checked="" type="checkbox"/> SK Slovakia	
<input checked="" type="checkbox"/> GD Grenada	<input checked="" type="checkbox"/> SL Sierra Leone	
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<input checked="" type="checkbox"/> KR Republic of Korea	Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:	
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Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: [#] regional Office	international application: receiving Office
item (1) 14 May 1999 (14.05.99)	60/134,344			
item (2)				
item (3)				

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (*only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office*) identified above as item(s): 1
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Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
	Date (day/month/year)	Number	Country (or regional Office)

ISA/ JS

Box No. VIII CHECK LIST: LANGUAGE OF FILING

This international application contains the following number of sheets:	This international application is accompanied by the item(s) marked below:	
request : 4	<input checked="" type="checkbox"/> fee calculation sheet	
description (excluding sequence listing part) : 27	<input type="checkbox"/> separate signed power of attorney	
claims : 1	<input type="checkbox"/> copy of general power of attorney; reference number, if any:	
abstract : 1	<input type="checkbox"/> statement explaining lack of signature	
drawings : 11	<input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):	
sequence listing part of description :	<input type="checkbox"/> translation of international application into (language):	
Total number of sheets : 44	<input type="checkbox"/> separate indications concerning deposited microorganism or other biological material	
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Figure of the drawings which should accompany the abstract:

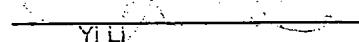
Language of filing of the international application:

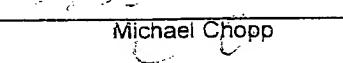
English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).


David B. Lee, Senior Corporate Counsel, Henry Ford Health System


Yi Li


Michael Chopp

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1. Date of actual receipt of the purported international application:		<input type="checkbox"/> received:	
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		<input type="checkbox"/> not received:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):			
5. International Searching Authority (if two or more are competent): ISA/		6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

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FEE CALCULATION SHEET Annex to the Request

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International application No.

Date stamp of the receiving Office

Applicant's or agent's file reference **1059.00042**

Applicant
HENRY FORD HEALTH SYSTEM

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE **240.00** T

2. SEARCH FEE **700.00** S

International search to be carried out by **US**

(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains **44** sheets.

first 30 sheets **427.00** b1

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remaining sheets additional amount

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Designation Fees

The international application contains **all** designations.

8 x **92.00** = **736.00** D

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Add amounts entered at B and D and enter total at I **1,303.00** I

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4. FEE FOR PRIORITY DOCUMENT (if applicable) **15.00** P

5. TOTAL FEES PAYABLE **2,258.00**

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TOTAL

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11 May 2000

Deposit Account No.

Date (day/month/year)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

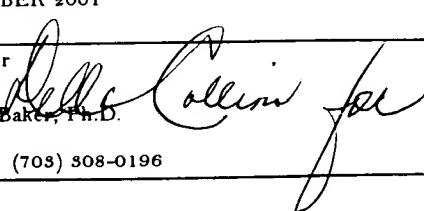
14

RECD 30 OCT 2001	
WIPO	PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1059.00042	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/12875	International filing date (day/month/year) 11 MAY 2000	Priority date (day/month/year) 14 MAY 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 35/00 and US Cl.: 424/93.1		
Applicant HENRY FORD HEALTH SYSTEM		

<ol style="list-style-type: none"> 1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>3</u> sheets. <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>0</u> sheets.</p> 3. This report contains indications relating to the following items: <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">I</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td>Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/></td> <td>Priority</td> </tr> <tr> <td>III</td> <td><input type="checkbox"/></td> <td>Non-establishment of report with regard to novelty, inventive step or industrial applicability</td> </tr> <tr> <td>IV</td> <td><input type="checkbox"/></td> <td>Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/></td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input type="checkbox"/></td> <td>Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/></td> <td>Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input type="checkbox"/></td> <td>Certain observations on the international application</td> </tr> </table> 	I	<input checked="" type="checkbox"/>	Basis of the report	II	<input type="checkbox"/>	Priority	III	<input type="checkbox"/>	Non-establishment of report with regard to novelty, inventive step or industrial applicability	IV	<input type="checkbox"/>	Lack of unity of invention	V	<input checked="" type="checkbox"/>	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement	VI	<input type="checkbox"/>	Certain documents cited	VII	<input type="checkbox"/>	Certain defects in the international application	VIII	<input type="checkbox"/>	Certain observations on the international application
I	<input checked="" type="checkbox"/>	Basis of the report																						
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VIII	<input type="checkbox"/>	Certain observations on the international application																						

Date of submission of the demand 15 NOVEMBER 2000	Date of completion of this report 20 SEPTEMBER 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer Anne-Marie Baker, Ph.D. 
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/12875

I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed the description:pages 1-27, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____ the claims:pages 28, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____ the drawings:pages 1-17, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____ the sequence listing part of the description:pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is: the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in printed form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. The amendments have resulted in the cancellation of: the description, pages NONE the claims, Nos. NONE the drawings, sheets/fig NONE5. This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/12875

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)

Claims 1-4 YES
Claims NONE NO

Inventive Step (IS)

Claims 1-4 YES
Claims NONE NO

Industrial Applicability (IA)

Claims 1-4 YES
Claims NONE NO**2. citations and explanations (Rule 70.7)**

Claims 1-4 meet the criteria set out in PCT Article 35(2)-(4), because the prior art does not teach or fairly suggest transplanting cultured bone marrow cells or a composite of mesenchymal stem cells and neurospheres into the brain or spinal cord to treat a patient. Thus, the prior art does not teach or suggest the claimed invention.

————— NEW CITATIONS ————
NONE

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: KENNETH I. KOHN
KOHN & ASSOCIATES
30500 NORTHWESTERN HIGHWAY
SUITE #10
FARMINGTON HILLS MI 48334

PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing
(day/month/year)

25 OCT 2001

Applicant's or agent's file reference

1059.00042

IMPORTANT NOTIFICATION

International application No.	International filing date (day/month/year)	Priority Date (day/month/year)
PCT/US00/12875	11 MAY 2000	14 MAY 1999

Applicant

HENRY FORD HEALTH SYSTEM

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer
Anne-Marie Baker, Ph.D.

Telephone No. (703) 308-0196

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1059.00042	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/12875	International filing date (day/month/year) 11 MAY 2000	Priority date (day/month/year) 14 MAY 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 35/00 and US Cl.: 424/93.1		
Applicant HENRY FORD HEALTH SYSTEM		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 15 NOVEMBER 2000	Date of completion of this report 20 SEPTEMBER 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer <i>Anne-Marie Baker, Ph.D.</i> Telephone No. (703) 308-0196

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/12875

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)

Claims 1-4 YES
Claims NONE NO

Inventive Step (IS)

Claims 1-4 YES
Claims NONE NO

Industrial Applicability (IA)

Claims 1-4 YES
Claims NONE NO

2. citations and explanations (Rule 70.7)

Claims 1-4 meet the criteria set out in PCT Article 35(2)-(4), because the prior art does not teach or fairly suggest transplanting cultured bone marrow cells or a composite of mesenchymal stem cells and neurospheres into the brain or spinal cord to treat a patient. Thus, the prior art does not teach or suggest the claimed invention.

----- NEW CITATIONS -----

NONE

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To: KENNETH I. KOHN KOHN & ASSOCIATES 30500 NORTHWESTERN HIGHWAY SUITE 410 FARMINGTON HILLS MI 48334

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 1059.00042	Date of Mailing <i>(day/month/year)</i> 19 SEP 2000
International application No. PCT/US00/12875	FOR FURTHER ACTION See paragraphs 1 and 4 below International filing date <i>(day/month/year)</i> 11 MAY 2000
Applicant HENRY FORD HEALTH SYSTEM	

1. The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further ... (s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer ANNE-MARIE BAKER, PH.D. Telephone No. (703) 308-0196
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(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1059.00042	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US00/12875	International filing date (day/month/year) 11 MAY 2000	(Earliest) Priority Date (day/month/year) 14 MAY 1999
Applicant HENRY FORD HEALTH SYSTEM		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
 - contained in the international application in written form.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority in written form.
 - furnished subsequently to this Authority in computer readable form.
 - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. Certain claims were found unsearchable (See Box I).

3. Unity of invention is lacking (See Box II).

4. With regard to the title,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. _____

- as suggested by the applicant.
- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/12875

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 35/00
 US CL : 424/93.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/93.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,750,376 (WEISS et al.) 12 May 1998, entire document.	1-4
A	US 5,690,927 (MAJOR et al.) 25 November 1997, entire document.	1-4
A	JACKOWSKI et al. Neural injury repair: hope for the future as barriers to effective CNS regeneration become clearer. British J. Neurosurgery. 1995. Vol. 9, pages 303-317, entire document.	1-4

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance		
"E" earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

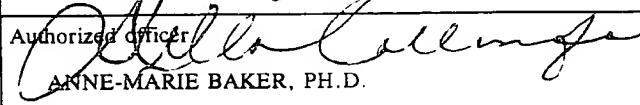
27 JULY 2000

Date of mailing of the international search report

19 SEP 2000

Name and mailing address of the ISA/US
 Commissioner of Patents and Trademarks
 Box PCT
 Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

 ANNE-MARIE BAKER, PH.D.

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/12875

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

WEST

Dialog (file: medicine)

search terms: transplant?, bone(w)marrow, cell?, brain, spin?, neuron, neurosphere, mesenchymal(w)stem(w)cell,
neural, neurodegenerative, stroke, injury

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 22 January 2001 (22.01.01)	
International application No. PCT/US00/12875	Applicant's or agent's file reference 1059.00042
International filing date (day/month/year) 11 May 2000 (11.05.00)	Priority date (day/month/year) 14 May 1999 (14.05.99)
Applicant LI, Yi et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:
15 November 2000 (15.11.00)

in a notice effecting later election filed with the International Bureau on:

2. The election was
 was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

BEST AVAILABLE COPY

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Henrik Nyberg Telephone No.: (41-22) 338.83.38
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